1: Handy E-5 (1920-1921)1923 OX6 Marquesas OX6

283 designating the number of strands in a rope (*tou'a*), the word *tua* was
322 used as a prefix, *tua to'u* meaning to triple and *tua fa* to quadruple. Thus *tou'a tua to'u* signified three-strang rope, *tou'a tua fa*, four-strand, and so on.

322 The adzes used in wood-work appear to have been always of stone,
412 although Quiros (25, vol. 1, p. 28) speaks of adzes of "thick fishbone and shells." It appears that for the northern half of the group at least, the island of Ei Ao was a center for the industry of making adz heads, on account of good stone being found there, but the adzes were made everywhere out of the best available stone.

To'i (*or toki*), was the generic term for adzes. There were doubtless many special terms for various kinds but only a few of them are known. Among these are *toki paopao*, a large adz (8), *toki tui pu*, a very large adz with a handle four feet long for canoe-making, and *toki-ouao* (8), described by Dordillon. The adz handle consisted of a crooked piece of wood (fig. 16, *a*), usually *fau*, according to Linton. In a chant descriptive of canoe-making, *noni* is mentioned as being used for that purpose but that such was the case is very doubtful, as *noni* wood is too soft. Colored, ornamental sennit lashings were used in binding the head to the handle. A lashing mentioned in the chant above referred to was called *humu a Tana-oa* (lashing of *Tana-oa*). One of the string figures collected by [524] Mrs. Handy is called by the same name. The finding of this string figure furnishes us, therefore, with a definite and interesting example of the derivation of ornamental lashing designs from string figures. According to Linton the stone head was wrapped in bark cloth before being bound with the sennit, the cloth binding to the stone head better than did the hard coconut fiber. Sacred adzes (*toki mana*) were used in coffin-making.

STONEWORK

● 324 Only the briefest mention will be made of stonework since this is a subject studied and described in detail by Linton. Skilled professionals directed the labor of making the stone platforms (*paepae*), that were used in connection with houses, feast places, tomb-temples, and other sacred places. In platform construction a core of earth or rubble, or both, was encased by walls made of three types of stone: common blocks or boulders (*ke'a*), which are to be found everywhere in the valleys and streams, furnished the major part of the material used in the walls, roundish, smooth beach-boulders (*kiva*) were used for horizontal, ornamental rows in the side-walls of some terraces, and for sections of the top pavements; and squarely cut blocks (*ke'etu*) of soft, reddish, volcanic stone or coral served as a curbing to trim the edges of certain section of elaborate platforms

1: Handy E-5 (1920-1921)1923 OX6 Marquesas OX6

(*po'u akau nui*). Linton describes also hammer stones, rubbing stones used for dressing wood, and the use of coral and pebbles for smoothing and polishing (20).

These blocks were frequently carved with high relief designs representing human figures and geometric designs. (See fig. 13.) Large stone carving in the round was practiced in making the stone images (*tiki ke'a*) of tribal gods, which were carved in exactly the same conventions as were the wood figures. In stonework as in woodwork, the chief instrument used was the adz, serving in this case, of course, more for wearing away and chipping than for cutting.

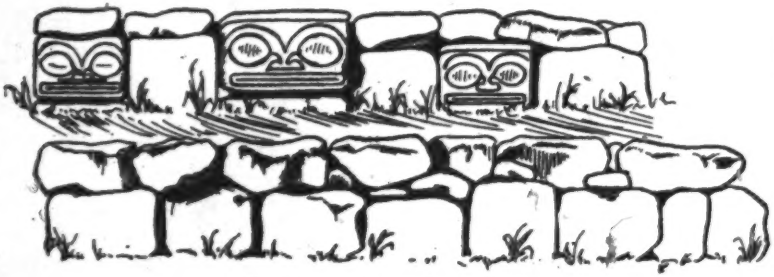

FIGURE 13.—A temple platform.

One of the chants and rites for the sacred first-born boy mentions *fatu*, sacred blocks of hard stone, that were put in the special structure erected for the rite. From these a piece was taken to make the new adz for the boy. This new adz was probably the *toki mana*. In the same chant is mentioned the use of wet sand for rubbing and polishing. Sharpening stones are to be seen everywhere today, blocks of smooth volcanic rock showing the worn spots and grooves made by grinding and sharpening adzes.

Gouges (*toki-koma, pakoma*—8) were made of stone as were also adzes. Linton describes the use of stone chisels hafted in wood, and casuarina mallets.

The rocks of great size that were used in constructing some platforms, and smaller stones too heavy for a man to carry were transported by means of a contrivance called *fata'a*, made of poles and logs, enabling a great number of men to lend their strength. The *fata'a* used in carrying great quantities of hogs to the betrothal feast was described as a great litter made by lashing cross-pieces on two long poles, which the men carried on their shoulders. On Ua Huka, a photograph was taken of natives carrying a large stone slung by a rope from a group of radiating poles resting one on top of the other (fig. 14.) At Pua Ma'u on Hiva Oa, a

1: Handy E-5 (1920-1921)1923 OX6 Marquesas OX6

native described to me the way in which on one occasion, he had helped carry a stone weighing several tons to which were lashed a number of large poles radiating in several directions.

HOUSE-BUILDING

The occasion of building of a new house was usually in honor of a first-born son. The construction of the platform (*paepae*) and the house (*fa'e*) itself was regarded as one enterprise, though a new house was frequently placed on an old platform. The labor was characterized as *hana me'ie* (common work) because the sleeping house was not *tapu;* hence the enterprise required no sacrifice. Although the house itself was not sacred yet the work on it, like all labor, was *tapu,* and required consecration of the workers. All of the work was done by men except the making of the coconut mats used for thatching, and of the pandanus mats used on the bed space, this being women's work. Before beginning the work, all the

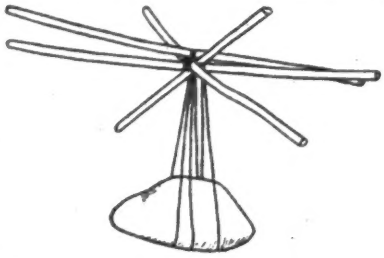

FIGURE 14.—Method of carrying heavy stones.

men who were to take part in it bathed in the sea in order to free themselves from contaminating influences.

The man who desired to have a new house erected employed the house-building *tuhuna* (*tuhuna hakatu fa'e, tuhuna hakatu paepae*). The assistants of this *tuhuna* were called *ta akau* (*ta,* strike; *akau,* wood) or *te tau poi ma te kaokao* (the people by-the-side). A feast was prepared and served, all who came being expected to bring stones. After the feast the *tuhuna* took charge of the work, those who had brought the stones working under his direction. The master builder laid the first stone, indicating the true line, and directed the operation. The two stones at each front corner of the platform were laid by the master *tuhuna* himself in the afternoon of the first day. Then a ceremonial priest (*tuhuna pu'e* or *tuhuna o'ono*) intoned the *pu'e* chant, ending that day's labor, the actual building of the platform being done the following day. A rainfall during the night was a sign that both the owner of the house and the *tuhuna* who was building it would die.

4: Fernandez de Quiros T-5 (1595)1904
OX6 Marquesas OX6

778 Wanting to take other things, the natives interfered, saying they must not take anything, showing that they respected that house and the figures.

501 Outside the village they had some very long and well-made canoes of a single tree, with the form of a keel, bow, and stern, and with boards well fastened with ropes made from cocoa fibre. In each one there is room for thirty or forty natives as rowers; and they gave us to understand, when they were asked, that they went in these large canoes to other lands. They work with adzes, which they make [321 of thick fish-bones and shells. They sharpen them with 324] large pebbles, which they have for the purpose.

132 The temperature, health, vigour, and corpulence of these people tell what the climate must be under which they live. One suffers cold at night, but the sun does not cause much molestation by day. There were some showers, not heavy; dew was never felt, but very great dryness, so much so that wet things, when left out all night on the ground, were found quite dry in the morning. But we could not tell whether this was so all the year round.

231 They saw pigs, and fowls of Castille, and the fishery is certain wherever there is sea.

241 The trees which have been mentioned as being in the open space before the village yield a fruit which reaches to the size of a boy's head. Its colour, when it is ripe, is a clear green, and when unripe it is very green. The rind has crossed scales like a pineapple, its shape not quite round, being rather more narrow at the end than near the stem. From the stem grows a leaf-stalk reaching to the middle of the fruit, with a covering sheath. It has no core nor pips, nor anything uneatable except the skin, and that is thin. All the rest is a mass of pulp when ripe, not so much when green. [262] They feed much upon it in all sorts of ways, and it is so wholesome that they call it white food. It is a good fruit and of much substance. The leaves of

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

were much wider in proportion to their length than in Hiva Oa, Tahu Ata and Fatu Hiva, many of them being almost square, but the house floor was everywhere long and narrow. The local differences are due to the greater or less width of the veranda part.

The perfect *paepae* contains stones of three sorts: large irregular stones, preferably water-worn, used for the walls; flat, water-worn bowlders, used to pave the veranda and house floor; and large rectangular slabs of cut stone (*ke'etu*), used to face the front of the elevated house floor. The *paepae* show all degrees of variation, from this ideal arrangement, depending upon the materials available, the importance of the owner and the local excellence of the mason's art. In Nuku Hiva the *ke'etu* facing of the house floor was a practically constant feature. In Ua Huka *ke'etu* facings were common but not constant and in Hiva Oa they were limited to a few of the better built houses, usually those of chiefs. In Fatu Hiva *ke'etu* were very rare. The use of flat water-worn bowlders for paving was much more usual but even these were sometimes dispensed with. In one of the interior valleys of Hiva Oa practically all *paepae* were built of rough stones throughout. The *paepae* of a chief's house in the valley of Haka Ui, Nuku Hiva, had the house floor paved with large flat slabs which had apparently been split like European flag stones. As Stewart (59, p. 291) mentions the use of flags in this or a similar structure in Haka Ui in 1831, their presence can scarcely have been due to European influence.

After the introduction of metal tools cut stone in the form of rectangular blocks was frequently used for *paepae* and in a few recently built *paepae* the stones were set in ordinary lime mortar.

The building of the *paepae* was supervised by a special *tuhuna* who drew on the ground the outline of the structure and with his own hands laid the first complete course of stone. He merely supervised the remainder of the construction, leaving the actual labor to the friends and relatives of the owner. The same *tuhuna* also supervised the construction of *me'ae* and other ceremonial structures, but he appears to have been simply a master builder, not a priest.

After the first course of stone had been laid, the space thus enclosed was filled with earth and stones, and the process was repeated after the laying of each successive course until the desired height was reached. The stones of the side walls were usually arranged so as to give the largest possible external surface, although a phrase in Dordillon's Dictionary (17) "*E tuku te kea matapao kaoko*" (Solid masonry—to place the long way of the stone in the thickness of the wall) shows that a more stable form of construction was known. After the side walls had been constructed the *ke'etu* were set on edge along the front of the proposed house floor, a third or even a half of their width usually being imbedded in

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

STONE ARTIFACTS

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[325]
[321]
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The original settlers of the Marquesas must have been in possession of effective wood working tools, as they would otherwise have been unable to make the large seagoing craft necessary for so long a voyage. There is nothing to indicate that they were familiar with metals, and these tools must therefore have been of stone or shell. In Oceania the use of shell adzes is practically limited to localities in which stone is rare or absent and it seems probable that the first arrivals in the Marquesas brought with them a knowledge of stone working and of at least the simpler implement forms. The islands of the group, with a single unimportant exception, are volcanic, having a great variety of lavas, basalts and tuffas, but they contain no workable deposits of sedimentary or metamorphic rocks. The presence of obsidian is questionable. The primitive implement maker thus had an abundance of material at hand which could be worked by the processes of pecking, grinding and chipping but no minerals which could be pressure flaked. Deposits of workable stone occur in practically all the large valleys, and although there was a distinct tendency toward local specialization and trade, implements of all the known types appear to have been at least occasionally manufactured in each locality. The stone working industry was thus in the hands of many persons, with a corresponding increase in the chances of individual variation. There are a few indications of the existence of local implement types, but the differences are unimportant.

HAMMERSTONES

The hammerstone is the foundation of any stone industry. Marquesan hammerstones were simply hard, water worn pebbles of convenient size and form which were obtained from stream beds or bowlder beaches. They were not shaped and appear never to have been hafted, and can be distinguished from other pebbles only by the battering of the ends. (See Pl. XLVIII, *F*.)

ADZES AND CHISELS

Under this head it has been thought best to describe all stone implements other than gouges, which have a cutting edge transverse to their long axis. No axes have been reported from the Marquesas. Many implements may, from their form, be at once identified as true adzes, but there is a large class of tangless blades whose use can not be established by the form and it seems best to describe them as a group rather than to risk the error of an arbitrary division into adzes and chisels.

Adzes and chisels appear to be uniformly made of phonolite. The material varies more or less, especially in the larger specimens, and it is evident that it was obtained from several sources. No adz quarries were visited, and from the ac-

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

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counts of informants it appears probable that the stone was obtained from rock slides and bowlders in the river beds. According to information obtained by Handy in Pua Ma'u, Hiva Oa, a boy's first adz was made from a fragment of a special black stone which was kept for that purpose in the *me'ae*. Informants were ignorant of the original source of these stones, and of how they were replaced when used up. No objects which might answer this description were seen in any of the *me'ae* visited.

The only large adz workshops visited were on the island of Ei Ao. During the late prehistoric period this island was a tributary of one of the tribes of Nuku Hiva, and the adzes made there were brought to Nuku Hiva and from there distributed in trade to all the other islands of the group. The area of these workshops, and the quantity of chips and rejects, would indicate a highly developed, long continued industry. No regular quarries were known to natives familiar with the island, but a few bowlders of phonolite suitable for adz making were seen. Small workshops are scattered all over the island, but curiously enough the center of the industry appears to have been on the top of a high ridge running along the southern side of the island, at a considerable distance from any source of material. Two striking features of the workshops of Ei Ao are the preponderance among the rejects of small thin forms, and the lack of ground specimens and grinding stones. This would seem to indicate that the trade called for chisels and carving tools rather than for large adzes and that the blades were exported unground.

The only tools employed in adz manufacture were hammerstones and grinding stones. The grinding stones consisted of smooth surfaced natural rocks of varying grain upon which the adzes were rubbed. Large natural bowlders whose surfaces have been worn into pits and grooves by adz grinding are still visible in the neighborhood of many settlements. The grinding of the gouges must have been done with some sort of small whetstone, but no examples were seen. Chants collected by Handy (personal correspondence) mention the use of sand in either the grinding or finishing of adzes, and it seems probable that the sand was placed in the grooves and hollows already worn in the large grinding rocks to hasten the abrasion.

The processes employed in adz manufacture were chipping and grinding, with a limited use of pecking. This last appears to have been used only in connection with a single specialized adz type, the *toki aa*. It is evident from rejects that the adz makers were especially skillful in chipping, bringing the implement to approximately its final form by this method. The chipping upon the bits of adzes is especially fine, the work approaching in excellence that done elsewhere by the pressure flaking process. The cutting edge of the adz was always ground

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

but the finish on other parts of the implement was extremely variable, used specimens showing all conditions from simple chipping to complete grinding and high polish. According to one of the chants already mentioned the finished adz was honed on the thigh to produce a final polish. The making of a boy's first adz was accompanied by various religious observances which have been described by Handy (32).

The collections of the Bishop Museum contain nearly fifty Marquesan adzes and chisels, and an approximately equal number have been studied elsewhere. From this series it is evident that in the Marquesas these artifacts show a higher degree of variation than in any other part of Polynesia with the possible exception of New Zealand. As a whole they fall at once into two main groups, distinguished by the presence or absence of a tang, while the tanged adzes may be further divided into simple adzes, *toki aa* and *toki kouma*.

SIMPLE TANGED ADZES

The blades of the simple tanged adz are distinguished by a broad straight bit, a cross section varying from rectangular to triangular and sides which slope inward toward the poll. In the quadrangular examples the inner surface may be either flat or slightly concave. The tang is formed by chipping away a portion of the upper end of the outer surface. It can not be distinguished on the inner surface. In some of the triangular specimens the sides of the tang are also chipped away, giving the blade a slight shoulder, but this is not a common feature. As a rule these blades are ground only on the bit and outer surface, exclusive of the tang. In all the quadrangular examples the width of the inner surface is equal to or less than that of the outer surface, never greater. Many of the rectangular specimens of this type agree so closely in form and finish with the normal adzes of the Hawaiian group that in a mixed collection it would be impossible to distinguish them. (See Pl. XLV, *D*.) The triangular adzes of this type, on the other hand, are practically identical with those normal for the Society Islands. (See Pl. XLV, *A-C*.) The bulk of the specimens fall between these two extremes.

TOKI AA

Blades of the *toki aa* type are recognized as a separate class by the natives themselves. They are characterized by a distinct tang, a heavy blade of rectangular cross section, and a more or less complete grinding of all the surfaces. Practically all the specimens of this class are large. The most striking features of the type are the great thickness of the blade portion, which in many adzes exceeds the width of the cutting edge, and the high angle formed by the two faces of the bit, usually fifty degrees or more. The *toki aa* appear to have been the only adzes in whose manufacture the pecking process was employed. In one of the Bishop

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

Museum specimens, No. B3070, the tang has evidently been shaped by this method, while an unfinished specimen, No. B3074, is pecked at the bit. *Toki aa* are said by the natives to have been used for the final dressing of planks. (See Pl. XLV, *E*, *F*.)

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TOKI KOUMA

The *toki kouma* are also recognized by the natives as a distinct class. They are characterized by a long narrow blade of triangular cross section, a well marked tang whose outer surface is often concave, and a narrow bit. In many examples the whole implement has a slight backward curve, the inner surface, which forms the base of the triangle, is more or less concave. The bit is formed by grinding away the base and a varying proportion of the apex of the triangular blade, and by partially grinding the sides adjacent to it. When seen from the front, the bit has the appearance of a shallow angular U with divergent sides, and the implement makes a cut resembling that of a gouge rather than an adz. In a few specimens the inner side of the bit is more or less hollowed, as in European gouges. (See Pl. XLV, *G*, *H*.)

Adzes of the *toki kouma* type are relatively common in the Marquesas, forming about 30 percent of all the specimens observed. They are of all sizes and were employed for a variety of purposes from the hollowing of canoes and containers to cutting ornamental designs on canoes and house posts. One specimen, said to have been used for fine carving, is 7 inches long, with a width of about ¼ of an inch at the bit. It seems certain that heavy, narrow-bitted *toki kouma* were also used in quarrying and dressing the large stone slabs employed in many Marquesan structures.

TANGLESS ADZES

The tangless adzes include a great variety of blades. The larger ones are probably true adzes while the smaller may have been either adzes or chisels. In cross section they range from nearly rectangular to triangular and in finish from a high polish on all surfaces to a simple grinding of the bit. In all examples seen the sides converge more or less toward the poll, which in some specimens is rounded or almost pointed. The bevel of the edge is in every case ground from the narrow side of the implement, which rests against the haft. In the larger specimens, the whole implement frequently has a well marked backward curve. (See Pl. XLVI, *A*.)

Adzes of this type are more numerous in the Marquesas than those of any other class. They are variable in size, outline, and cross section and appear to grade imperceptibly into the simple tanged adzes. The tangs of some specimens are so slight that it is difficult to determine in which class they should be placed.

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

UNCLASSIFIED ADZES

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●324 There are a few Marquesan adzes which defy classification and deserve individual descriptions.

A large adz 8⅞ inches long with a maximum thickness of 1½ inches is shown in Plate XLVI, *B*, 1. The poll is 2½ inches wide and has across its center a well marked ridge. The bit has the remarkable width of 7¼ inches. The blade is rectangular in cross section and has been smoothly ground on all surfaces. The bevel is ground at a long angle, making a thin blade unsuitable for heavy work and it is hard to see for what purpose an implement of this sort could have been employed. The specimen is heavily patinated, indicating a considerable age.

The adz illustrated in Plate XLVI, *B*, 4 has a thin, flat, completely polished blade of beautiful workmanship. It is 3 inches long, with a thickness of less than ⅜ of an inch and a width of about one inch at the top and 1¾ inches at the bit. The edge is ground with a flat well-marked bevel, and the angles formed by the juncture of the sides with the inner surface have been rounded off.

A large adz of remarkably fine workmanship is shown in Plate XLVI, *B*, 2. In general outline and form of tang it conforms to the *toki kouma* type, but the sides below the tang diverge rather rapidly, forming a broad bit instead of the narrow one normal in implements of that type. The lower side of the bit is considerably hollowed, giving to the cutting edge a well marked curve. The dimensions are: length, 11½ inches; length of tang, 4 inches; maximum thickness of blade, 2¾ inches; width at upper end, 2 inches; width at bit, 3¼ inches. This specimen was purchased in the island of Ua Huka and is said to be of local material and workmanship.

The still more curious adz shown in Plate XLVI, *B*, 3, is the largest Marquesan adz known to the author, being 14½ inches long and weighing slightly over 6 pounds. The upper end is formed into a well marked tang 4½ inches long. Below this tang the shaft is triangular in cross section and of uniform size to within 4¾ inches of the bit. From this point the inner surface slopes forward at an angle of 40 degrees, while the sides broaden out and the outer edge slopes slightly backward. As a result of this the inner ground surface of the bit is oblong, the outer triangular. The whole surface is heavily patinated indicating an age greater than that of most of the specimens in the collection.

On Plate XLVI, 5 is shown a small and crudely made blade 3¼ inches long, one inch wide and one inch thick. The shaft is triangular, but with the base of the triangle forming one side of the implement so that its plane is across that of the cutting edge. The bit appears to be ground equally from both sides, as in an axe, and the cutting edge forms a distinct angle with the axis of the implement, as in

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

a turner's chisel. The shaft, either from accident or intention, is curved to fit the hand accurately, and the whole surface shows a slight but even polish of the sort acquired through wear, so that it is probable that the implement was never hafted.

COMPARISON OF MARQUESAN ADZES WITH OTHER POLYNESIAN TYPES

A thorough comparative study of Oceanic adzes would, the author believes, yield results of great ethnological value. Such a study is beyond the scope of this paper, but it seems well to point out the features which distinguish Polynesian adzes as a class from those used in Melanesia, and to indicate the distribution of the various Polynesian types. No satisfactory information is available for some parts of Polynesia, but the conditions appear to be as follows:

Melanesian adzes as a class are oval or eliptical in cross section, with smoothly rounded contours, and nearly all of them are completely ground and polished. The use of a distinct tang is unknown. Polynesian adzes, on the other hand, are triangular to rectangular in crosssection with surfaces composed of a few large planes meeting at sharp angles. New Zealand appears to have been the only locality in which the grinding and polishing of all surfaces was normal. Fully ground specimens are fairly common from Tonga, the Society, Austral and Cook groups, and from Easter and Chatham Islands, but are less numerous in collections than those which are at least partially rough. In Hawaii and Samoa fully ground adzes are almost unknown, while in the Marquesas complete grinding is practically limited to the *toki oa* type. In Tonga there appear to be two quite distinct types, one of which is clearly Melanesian while the other is an angular tangless blade of Polynesian character. Adzes of Melanesian contour and finish are present in collections from New Zealand, Easter Island, Chatham Island and rarely from the Society Islands. It thus appears that, broadly speaking, adzes of Melanesian type are present in all those localities in which there is a marked tendency toward complete grinding of recognizably Polynesian forms, while they are lacking in regions where complete grinding is rare or absent. It seems probable, therefore, that this feature is everywhere referable to a Melanesian influence, either direct or transmitted, and that the original Polynesian implement was ground, at most, upon the bit and outer face.

The angular Polynesian adzes may be divided into two main classes, tanged and tangless, each of which contains a number of subtypes. Tanged adzes are present in all the marginal Polynesian areas and extend as far west as the Cook Islands but they are rare in Samoa and absent in Tonga. They are divided into well marked local types: the Hawaiian type, the Southwestern type and the New Zealand type.

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

the lower part of a narrow *toki kouma* whose tang has been broken off. The implement appears to be complete however, and shows no signs of hafting. It is possible that this implement marks a transition from *toki kouma* to gouges and that the two classes of implements are related. 412

KNIVES AND SCRAPERS

Marquesan knives were usually made from bamboo or shell, and shells were used as scrapers, but stone knives and scrapers also existed. In the absence of iron tools, stone knives have been used as a makeshift until comparatively recent times. Pere Simeon Delmar, head of the Catholic Mission in Taiohae, Nuku Hiva, has witnessed the manufacture of stone knives. He says that the knives, often six to eight inches in length, were made from flakes of a special variety of phonolite, which were detached from a core by a single sharp blow with a rounded stone held in the hand. The natural fracture gave a fairly sharp edge to the flake and it was used without retouching or hafting. When the edge became dull from use, the implement was thrown away. In M. Delmar's experience these stone knives were used only to open and scale fish. Many phonolite flakes were found in old village sites, but their certain identification as knives is impossible. (See Pl. XLVIII, *G*.) [824] [321]

Two stone artifacts were collected which appear to have been scrapers. One of these, found in an old village site, is a large semicircular spall of some basaltic rock which has evidently been retouched along its lower edge. Its form is not unlike that of some of the shell scrapers used for tapa making. (See Pl. XLVIII, *E*, 1.)

The second specimen was collected on the island of Ei Ao. It is a thin spall of phonolite which has been worked into rectangular form and dressed along the outer end and one side with an abrupt retouch. This implement appears to be complete, and is much too thin and carefully worked to be a reject from the adz workshops. It was identified by natives as a scraper. (See Pl. XLVIII, *E*, 2.)

RUBBING STONES

The Marquesans used rubbing stones in the manufacture of various wooden objects and in dressing the large stone slabs which are a common feature of their masonry. The large rocks upon which adzes were ground and polished have already been described (p. 321) and mention has been made of the probable use of whetstones, but it is uncertain whether rubbing stones were used in the manufacture of other stone artifacts. The modern makers of *popoi* pounders deny their use, and none of the ancient artifacts show a finish which could not have been produced by careful pecking and a final polishing with sand. The large flat 412 324

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

412 surfaces and true angles of the stone slabs, on the other hand, could hardly have been produced with any other implement. No information as to the form or material of these stone dressing tools was obtained, but it seems probable that they were fragments of cellular lava having a more or less flat, natural surface.

412 322 The rubbing stones used in wood working were of two types, abrasive stones, which were used to obliterate the marks of coarser tools and to some extent to shape the object, and burnishing stones, which were used to give a final high polish. All the abrasive stones seen were made from more or less water-worn lumps of coral or coraline limestone, but it appears probable that pebbles of the finer grained cellular lavas were also employed. The texture varied considerably and at least one specimen was so hard and smooth that it could have had little abrasive effect. Several rubbing stones of increasingly fine grain were used in finishing a given object, the last grinding stone being followed by the burnisher. (See Pl. XLVIII, *C*.)

Burnishing stones were small pebbles of even-textured, rather soft rock which were used only in the final stage of manufacture and had no abrasive effect. They were rubbed rapidly back and forth upon the surface to be polished, the workmen exerting a fairly heavy, even pressure. In time they acquired a peculiar glassy polish resembling that of a gastrolith. The smoother the implement the better the finish which it could impart to a bowl, so old specimens were highly prized. (See Pl. XLVIII, *D*.)

PERFORATED STONE DISKS

324 Two perforated stone disks were collected by the expedition, one, of unknown history, being obtained in the valley of Hane, Ua Huka, while the second was found lying among some skulls in a *me'ae* in the valley of Hanapaoa, Hiva Oa. Both specimens are made of rather porous lava. (See Pl. L, *A*, 1-2.) The dimensions are as follows: No. 1, length 3⅜ inches, width 2⅞ inches, thickness 1 inch, width of perforation at surface 1 inch, width of perforation at center 3-16 of an inch. No. 2, length 4 inches, width 3⅛ inches, maximum thickness 1¾ inches, minimum thickness 1½ inches, width of perforation at surface 1⅜ inches, width of perforation at center ⅝ of an inch. The perforation in No. 1 is almost perfectly centered, that in No. 2 noticeably nearer one end than the other. In both, the perforation appears to have been pecked rather than drilled, and is formed by two conical pits which meet in the middle of the objects in a rough edged orifice. The surfaces of both specimens are rather carefully smoothed.

Both objects were identified by an Atu Ona informant as weights for pump drills, but this explanation does not appear entirely satisfactory. The pump drill was a common Marquesan tool, and if such weights were used one would

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

expect to find many specimens, whereas perforated stone disks are so rare that most natives had never seen one and could offer no suggestion as to their use. The actual specimens are, moreover, poorly adapted for this purpose as No. 2 is quite asymmetrical while the perforation of No. 1 is much too narrow to admit a drill shaft. Perforated disks of this sort are also found in Hawaii as a rare form. 324

SINKERS

Stone sinkers were used with at least one of the Marquesan types of fish-net, but specimens deliberately shaped for this purpose are extremely rare. Only one object which could be identified as a net sinker was seen. This was a rather crudely finished specimen of coarse lava having an almost globular body terminating in a short knob with a somewhat expanded outer end, in which a shallow transverse groove was pecked. It was about 2¾ inches long and 1¾ inches in diameter. The neck and the single groove across the center of the top are said to have served for the attachment of cords. According to the owner of this specimen, an unusually intelligent native, sinkers of this type were attached to the lower edge of the long seins used in turtle fishing. 227

A second specimen, clearly related to this form but of such fine finish that its purpose was probably ceremonial rather than utilitarian, was seen in a collection in Taiohae, Nuku Hiva. The body was between 3 and 4 inches in diameter and almost perfectly spherical. The neck was very short and oval in cross section and each of the two parts into which the end was divided had been carved into a flat tiki face directed upward. The specimen appeared to be made of phonolite or some other equally hard and fine grained stone and had been carefully polished on all surfaces. Its heavy patination indicated a considerable age. This sinker, if it is a sinker, bears a remarkable resemblance to certain specimens found near the East Cape of New Zealand, which are identical in outline and in having two heads carved upon the projections at the top. A crudely made object of the same type, now in the Museum of the University of Pennsylvania, is shown in Plate XLIX, *A-B*. The New Zealand sinkers differ from the Marquesan examples in having the body of the sinker covered with elaborate carving. [171]

A stone object in the collection of Mme. Maleius, in Ta'aoa Hiva Oa, can probably be classed as a sinker. It is oval in outline, with one flat and one convex side. Down the center of the convex side a groove has been pecked, giving the whole much the form of a coffee bean. The material is a rather coarse lava, and the whole finish is rough. As far as known no other object of this sort has been reported from the Marquesas and the owner, who was thoroughly conversant with native matters, could offer no suggestion as to its use.

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

227 171 In Hawaii artifacts in every way identical with this object are quite common and were used as sinkers for squid hooks. The Marquesas was an important point of call for whalers in early days, and the first missionaries to establish themselves in the group were Hawaiians, so it is probable that this object was imported from that group during the historic period.

ANCHORS

501 Native accounts of the ancient fishing methods mention the use of anchors, but it seems probable that these were simply rough stones. A single worked specimen was seen in Taiohae, Nuka Hiva. It consisted of a conical stone of oval cross section about 10 inches high and 7 inches in diameter, through the upper end of which a hole about ¼ of an inch in diameter had been pierced. The natives were unable to identify this specimen, and as it was found among the debris of a trader's store it may be either of European workmanship or due to European influence.

PIPES

276 324 [539] The use of tobacco in the Marquesas is almost certainly post-European, but the plant was cultivated there very early in the historic period. Clay pipes in burial caves that contain no other evidences of European contact indicate that they were among the earliest trade objects and most of the stone pipes appear to have been made at a time when the native culture had undergone little, if any, change. The clay pipes referred to are clearly the prototype from which the stone pipes were evolved, but the Marquesan pipe makers were no slavish imitators and their work shows considerable originality.

The material used was a rather soft, even-textured volcanic rock, and the shaping was probably done with metal tools, although the fine finish of most of the specimens makes it impossible to say whether such tools were always used. The bowl form was like that of the European clay pipes of the early nineteenth century, but the other features vary greatly. The simplest form is shown on Plate XLIX, *C*. It consists of a simple bowl 1⅜ inches long and about ¾ of an inch wide, with a hole pierced in one side for the stem. The bottom of the bowl is decorated with a short cylindrical knob.

A more elaborate specimen, seen in Hanahehe, Hiva Oa, consisted of a similar bowl, without the knob, which had at the bottom two projections ⅜ of an inch long, placed directly opposite each other. Both these projections were drilled [531] to take stems. The bowl was covered with lightly incised designs which had been almost obliterated by handling. The use of multiple stems appears to have been rather common and according to reliable informants some specimens had as many as four.

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

By far the most elaborate pipe seen was in the possession of Mr. Frank Varney of Atu Ona, Hiva Oa. It is shaped like the bowl and fore-stem of an ordinary straight brier pipe, but has a tiki figure carved against the curve of the bowl in three-quarter round. (See Pl. XLIX, *D*.) The convention of this little figure is curious; the eyes are indicated by raised circles on either side of the head, and there is no distinct mouth or nose. A small beak-like projection at the bottom of the head, between the eyes, suggests that it may represent a bird. A hole has been drilled between the figure and the pipe bowl at about the level of the waist. This pipe is known to be very old and has been in the possession of a single family in Atu Ona for at least three generations.

276 532

BOWLS AND TRAYS

Stone bowls and trays are rare in the Marquesas, and the few specimens extant vary greatly in form and finish. The larger objects of this sort are usually quite crude. Some of the smaller bowls, on the other hand, show great skill in manufacture and are well finished and even decorated.

415 [324]

The largest object of this sort seen was a so-called tray which was built into the upper edge of a small platform in the *tohua* of Hutuhu'u, valley of Taipi-Vai, Nuku Hiva. It appeared to be a large fragment of a lava bubble which had been smoothed and slightly excavated on the inner surface, the outside being left rough. It was 3 feet, 6 inches long, with an average width of 2 feet, and an external depth of from 6 to 9 inches. Its form was likened by the natives to that of a canoe, a small natural projection at one end being pointed out as the prow, but the depression was really roughly rectangular. It is said that the bodies of victims who were to be eaten were laid upon this tray, but no other data could be obtained.

Another large bowl or tray of an altogether different form and use, was seen in the island of Tahu Ata. It apparently had been made from an oval water-worn bowlder, the outer surface left unworked. It was seen in the course of a visit so brief that exact measurements were impossible but the dimensions were approximately as follows: length 2 feet, 6 inches, width 20 inches, external depth 18 inches. The depression was circular, narrowing toward the bottom, and was about 14 inches in diameter and one foot deep. The rim was flat and rather carefully smoothed. Upon one end of the rim there was a cylindrical projection about 3 inches in diameter, and of the same height, which was said to be the base of a small tiki figure about one foot in height which was carved in one piece with the bowl. This little figure had been broken off and carried away many years ago. The bowl was built into the pavement of a large dwelling *paepae*, but informants were not certain that this was its original position. It

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

bowl was made of some rather hard close grained stone and was finely finished inside and out. Still another specimen (B3699C) appears to be a fragmnet of a rather shallow bowl 8 to 10 inches in diameter. It is made of a soft grey stone, possibly an indurated ash. At the lower end of the curve it bears a chevron carved in high relief along whose center there is a single incised line. It seems probable that this formed part of a zigzag band running around the bowl, but the fragment is too narrow to tell certainly. No. B3699D is a fragment from the side of a rather large and heavy bowl or tray having a bottom thickness of about one inch. The outer surface was smoothly finished and decorated with closely spaced incised lines forming simple curvilinear designs. (See Pl. XLIX, *E*.)

POUNDERS

INTRODUCTION

Pounders were, with the possible exception of adzes, the commonest of Marquesan stone artifacts, and they still form a regular part of the domestic equipment of all native households. In ancient times they appear to have been manufactured to some extent in all the valleys but even in prehistoric days the superiority of the stone found in Ua Pou and Ua Huka had led to a localization of the industry. The finished implements were traded from these islands to the rest of the group. The manufacture of *popoi* pounders has continued in Ua Huka down to the present time, and shortly before the war large numbers are said to have been made for a German trading company which sold them in their stores throughout the group and even in Tahiti.

At the present time the making of *popoi* pounders appears to be essentially a spare time industry, the natives working upon them when they have nothing more pressing to do.

For the pounders three varieties of stone were formerly used, all of which appear to have been rather soft, even grained magmatic rocks. The best grade was called *ovuo*, a grey rock, fine grained, strong and light. The second best was called *puhite'a*, and the third best *potako*. All these varieties are said to have been obtained from the high part of the island lying to the east of the valley of Hokatu, but as bowlders in two other valleys were pointed out as good pounder stone, it is probable that the deposits were rather wide spread. The stone does not appear to have been regularly quarried, but was obtained from rock slides and stream beds.

The only tool used in making modern *popoi* pounders is an ordinary steel axe, and even the finishing touches are given with this unwieldy instrument. The process of manufacture is as follows:

An irregular piece of stone about three times the size of the finished implement is roughed out with heavy blows of the axe until it becomes a cone. (See Pl. LI, *A*, 1.) This cone is then worked down by light blows on all sides until the general form of the finished implement is produced. This is then smoothed by light, even blows with the corner of the axe until all the contours are perfect. The neck and body of the implement are then shaved with the edge of the axe until the scratches left by the last process are obliterated. The head

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

412 and base are left rough. The smooth surface of some new and unused specimens would seem to indicate the use of some sort of abrasive for the final finishing, but informants who were themselves makers insisted that this was not the case. The body of the implement is some- 324 times rubbed with a mixture of coconut charcoal and oil which gives it a shiny black finish contrasting pleasantly with the grey of the head.

Informants of Ua Huka insist that the ancient process of manufacture was essentially the same except that stone adzes were employed instead of the modern steel axe. The stone used on Ua Huka could probably have been worked in this way and the information may be correct for this locality, but in other islands a variety of rock was employed, some of which could hardly have been worked with stone adzes. The heads of many of the old pounders show marks which make it seem certain that they were finished by pecking.

MODERN POUNDERS

412 The modern commercial pounders all conform to a single well-marked type (Pl. LI, *A*, 2).

The pounders are characterized by a neck of oval cross section which expands to form the head and the body of the implement. There is no clear line of demarkation between these parts and it is impossible to say where one ends and another begins. From the neck the body flares outward toward the base, which is circular, so that when seen in profile the sides of the pounder appear concave. The bottom is convex, with a rather low curve, and is always left rough. The head is oval in horizontal cross section, the lower part contracting gradually toward the neck. The upper part has the form of a high rounded dome and is divided into two equal lobes by a transverse groove which extends down either side almost to the point of maximum width of the head. The surface of these lobes is left rough, apparently with ornamental intent, and the whole form is clearly phallic.

ANCIENT POUNDERS

The natives themselves classify pounders according to use, recognizing four distinct classes as follows: (1) *popoi* pounders, (2) pounders for infant food, (3) salt pounders, (4) children's pounders. They also recognize certain of these implements as forming a fifth distinct class whose use has been forgotten. As these native classifications according to use are correlated with differences in the size and form of the implements, they will serve as the basis for the present descriptions.

POPOI POUNDERS

Popoi pounders are numerically much more important than those of any other class, practically all large pounders belonging under this head. They are divided by the natives on the basis of size and weight into men's and women's pounders, the larger implements being used by the men. All *popoi* pounders are known by the generic term *kea tuki popoi* (stone to beat *popoi*) but those having flat heads are also known as *opu* (stomach). The phallic forms do not appear to have had special names. The term applied to the tiki-headed pounders was descriptive, meaning carved pounder.

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

412 rather abruptly, and the ends are almost vertical. The top bears a longitudinal groove instead of the usual transverse one. In No. 2 the head is smoothly rounded, with a short transverse groove.

Tiki Headed Pounders

412 531 Tiki headed *popoi* pounders represent the highest development of Marquesan stone working, the only objects which approach them in excellence being certain of the small stone figures. The expedition was fortunate enough to obtain five perfect specimens and the carved head of a sixth, while ten others were studied in private collections or from photographs. In all of these pounders the carving followed one or the other of two well-marked conventions and the series appears large enough to make possible a fairly accurate study of the type. In spite of their fine workmanship and present rarity tiki headed pounders were, and in some cases still are, used as ordinary household utensils. All informants agree that the carvings are purely decorative and have no religious significance.

In general form the tiki headed pounders agree perfectly with the angular headed type of phallic pounder already described, and it seems certain that they have been developed from these implements. According to informants the carving was done with sharks' teeth or rats' teeth, but the form of the carving tools and the method of employment have been forgotten. In the actual specimens the grooves of the carving are semicircular in cross section and exhibit a high polish.

● [324]

The decoration consists of two heads, formed by carving a face upon each of the lobes of a phallic pounder of normal angular type. In carving these faces two distinct conventions were employed, one of which appears to have been rare, being shown by only three of the sixteen specimens. In the normal convention the features are carved in low relief and the decorated top is set off from the neck of the pounder by a well marked groove. Each of the faces covers the entire surface of a lobe, its center line being in the middle of the outer end. The mouths are broad, in the form of long narrow ovals with rounded ends. The tongue is shown as a narrow longitudinal ridge, and the lips are broad, with a flat or slightly concave surface. In one specimen there is a narrow band between the lips and the tongue which may represent the teeth. Immediately behind each corner of the mouth a small decoration in the form of a "V" is sometimes carved. The nose is broad and flat, with almost semicircular nostrils. The eyes are carved on the upper corners of the lobe and are directed toward the side rather than forward, and the space between them is disproportionately wide. The eyes are of the usual spectacle form—a raised ring encircling a convex center—and are connected to the base of the nose at the inner end and to the ear at the outer end by narrow raised bands. As a rule the eyes are horizontal, but some specimens show a slight upward or downward inclination. The ears are represented as double scrolls, and are so placed that their outer edges fall along the line of the inner edge of each lobe. There is a well marked groove above either eye. The top of the head may be either rounded or pointed, while in one specimen broad flat grooves have been carved along either side above the eye groove, giving the head a sharp central keel. The space on the side of the pounder below the ears and between the corners of the mouths of the two faces is filled with either one or two small block figures bearing incised designs. In one specimen (not shown) a small block figure of this sort is placed in the middle of the forehead of either face.

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

MISCELLANEOUS TOOLS

Quiros (51) says that the Marquesans used adzes made from thick fish bones or shells. This is the only evidence of the occurrence of these implements in the Marquesas and as no examples are known, it seems probable that Quiros confused the Marquesas with some of the low coral islands visited on the same voyage. 412 321

Sharks' teeth, hafted in various ways, were formerly used as knives and carving tools, but no specimens seem to have survived and the methods of hafting have been forgotten by the present natives. According to Langsdorff (38, p. 175) the teeth from the lower jaw of the shark were used as substitutes for gimlets or awls, being fastened to wooden handles. Sharks' teeth, apparently unhafted, were also used as razors. The hair was gathered in small bunches and the tooth sawn back and forth across it at the roots. [825] [302]

Very few bone tools appear to have been used in the Marquesas. Fleurieu (23, p. 135) mentions the use of bone awls. Narrow wedge-like implements of bone or hard wood were used to pound the feather caulking into the bow and stern seams of canoes. Bone knives are described on page 351.

A number of shell implements appear to have been employed in wood carving, although we have no information as to their form. The grooves in *toa* wood tapa beaters are said to have been cut with pearl shells ground to a keen edge, and the handles were shaped with a small black shell, called *mama*. Fleurieu (23, p. 135) says that the Marquesans used "pieces of shell of different shapes and sizes, sharp or toothed like a saw." Knives made from whole pearl shells ground to a sharp edge were used for a number of purposes. There appears to have been no clear distinction between these and the shell scrapers used in tapa making.

Rasps made from the skin of the shark or giant ray were used in shaping clubs and other objects made from the hard *toa* wood. They were made by wrapping the skin around a smooth stick while it was wet and soft. One end of the stick projected a few inches beyond the skin, forming the handle. (See Pl. LVI, *A*.) Fine shark skin, apparently not mounted, was used in polishing bowls and other wooden objects. Sections from the tail of the giant ray were also used as rasps, requiring no preparation other than drying. These tail rasps have continued in use until modern times for the grating of sandal wood, although recently they have been supplanted by files. The spines of the sting ray are said to have been hafted and used as saws. 412 322 237

Chisels edged with rats' teeth were formerly used by expert Marquesan artisans in the carving of hard stone. None of these implements have survived, 412 324 [237]

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

4/2 [324] and the method of hafting is problematical. The objects carved with rats' teeth indicate that the work was done by continued rubbing rather than by strokes of the chisel, as the bottoms of the carved lines show a high polish.

The most important wooden tool appears to have been the mallet. This was employed with the chisel in shaping and carving wooden objects, and was also used with caulking tools. Mallets were made of *toa* wood, and were short [324] and heavy. The specimen shown (Pl. LVI, *B*) is 11 inches long, with a maximum width at the head of 4 inches, and a maximum thickness of 1¾ inches. The handle of the mallet was round or rectangular and was frequently pierced near the outer end for the attachment of a wrist loop. The head was pear shaped in outline, expanding and thickening gradually toward the outer end. The sides and end of the head were flat, with a surface at right angles to that of the broad surfaces. In use the blow was struck with the broad face, not with the edge.

No specimens of the ancient caulking tools were seen, but those used on the bow and stern seams of canoes are said to have been wedge shaped. Those used for the lashing holes along the sides were simply pointed sticks with a flat upper end. The favorite material for these implements was *toa* wood.

A long needle of hard wood (Pl. LVI, *C*) was used to sew on house thatch and to pass the cord used in canoe lashings through the lashing holes. The specimen collected is slightly over a foot in length. On one side of the point there is a short barb. The butt has a small knob, to which the cord was attached.

The pump drill was the most elaborate of the Marquesan tools. Apparently no examples have been preserved, but their form and method of use are still remembered by the older natives. The Marquesan drills appear to have been identical with those used elsewhere in Polynesia, although there are indications that some of them were equipped with stone whorls, a rare feature. According to informants, drill points were made in ancient times from a sliver of stone, a shark's tooth, or a rat's tooth. All these materials were replaced at a very early date by iron nails obtained from Europeans.

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

but as these could be captured by other and much easier methods its seems probable that the shooting was a sport, and that the bow was only a toy. No Marquesan bows seem to have survived, but according to information obtained by Handy they were made of guava or *toa* wood while the arrows consisted of shoots of bamboo, pointed at one end. The arrows, and the species of bamboo from which they were made, were called *kohe*. The bow string was called *aho*. The form of the musical bows now in use would suggest that Marquesan bows were semi-circular in cross section, with a flat outer and rounded inner surface, but this is purely surmise.

Elaborately made slings were employed in warfare, while a smaller and cruder form was used by boys as a toy. These toy slings were made from ti leaves, which were braided together to form the cords, while the pocket was formed by the natural width of the leaf. In use the long end of the cord was wrapped around the hand and the short, or release end, held between the thumb and finger.

WEAPONS

Every Marquesan tribe was normally at war with its neighbors, but the warfare does not appear to have been of a very deadly character, consisting for the most part of desultory raids for heads or to capture victims for sacrifice. The native armament was entirely offensive and consisted of slings, and of various types of spears and clubs. The bow, although known, appears never to have been used in war.

In spite of their knowledge of the sling, stones thrown by hand played an important part in Marquesan warfare, the shorter range of such missiles being compensated for by their greater accuracy. Any Marquesan battlefield would offer an abundance of ammunition, and, to judge from the modern natives, a stone throwing warrior would be decidedly dangerous up to forty or fifty yards.

SLINGS

Slings, with specially prepared sling stones, were used for all long range fighting. The stones were oval or double conical and sometimes weighed as much as half a pound (Pl. LXX, *B*). They were made of heavy close grained rock and the specimens seen were symmetrically pecked, but unground. Porter (49, pp. 86-87) says that they were highly polished by rubbing against the bark of a tree. According to one informant, round sling stones were also used, but the only specimen seen appeared to be unworked. In battle the stones were carried in nets slung from the waist, or, in sea fights, were piled in the bottom of the canoe.

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

opposite ends, as some of them overlap slightly in the center of the implement. It seems probable that this form is a hybrid, combining the continuous grooves of the round beaters with the flat surfaces of the square type.

Tapa Anvils

The Marquesans employed anvils of both stone and wood. Stone anvils are now little used, but in former times they appear to have been part of the equipment of every household. In early times they were used for only the preliminary beating, but later were occasionally employed for the entire manufacture.

In its simplest form the stone anvil is nothing more than a large flat water-worn bowlder, but most anvils seen have been carefully worked from large blocks of stone. They are rectangular, with a length of from 18 inches to 2 feet, 6 inches; a width of from 8 inches to one foot; and a thickness from 4 to 7 inches. The tops have been carefully flattened and smoothed, the sides made vertical or nearly so. The bottom is usually left rough. Some anvils are widest in the middle, tapering evenly toward either end. An especially fine specimen from Pua Ma'u, Hiva Oa (Pl. LXXIV, *B*), has a longitudinal groove along either side for a short distance below the top and is remarkable in having the bottom more or less hollowed—a feature which may have resulted from its use as a whetstone for stone adzes. These carefully made stone anvils are of considerable interest, as they do not seem to have been used in any other part of Oceania.

Wooden anvils are still used in the manufacture of tapa. The only one seen was made of breadfruit wood, rectangular in cross section, and was approximately two feet long, ten inches wide, and six inches thick. This anvil differs in form from those described by aged informants, and possibly is of a modern and degenerate type. In former times two types of wooden anvils appear to have been employed. The simpler of these was a long straight log, preferably of breadfruit wood, smoothed but not otherwise prepared. The more elaborate type was made from a light colored wood, possibly a species of sandal wood, obtained on the plateau. It was U-shaped in cross section, with straight ends. Its hollowed interior made it more easily portable and increased its resonance so that the sound of cloth beating could be heard for a long distance.

Tapa Making

The paper mulberry, from whose bark the best grade of tapa was made, was raised in regular plantations. Handy was informed that dead trees 18 to 20 feet high were cut down and stripped of their bark, that the bark was then soaked, and finally beaten to remove the inner skin. A local informant said that live shoots 10 to 12 feet high were cut and barked while still green, and described the process of tapa making as follows:

The fresh bark was taken to a stream, where the coarse outer bark was removed with a shell scraper. The bark was not soaked before the initial beating, a point which was stressed by the informant who was familiar with both the Hawaiian and Marquesan processes of tapa making. The bark was beaten on a stone anvil with a round beater until it was similar to

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COMPARATIVE TABLE MATERIAL CULTURE—Continued

STONE ARTIFACTS

	MARQUESAS	NEW ZEALAND	HAWAII	SOCIETY ISLANDS	SAMOA	TONGA
Tanged adz	Dominant form	Dominant form	Over 90 per cent of all adzes	Dominant form	Rare	Not used
Cross section	Triangular or rectangular	Rectangular, triangular forms rare	Rectangular	Triangular	Triangular	———
Finish	Rough, complete grinding rare	Completely ground, rough finish rare	Rough, complete grinding almost unknown	Complete grinding, rough finish rare	Complete grinding unknown, very crude	Complete grinding normal
Tangless adz	Secondary importance	Secondary importance	Very rare	Rare	Normal type	Only type
Axes	Not used	North Island only	Not used	Found archaeologically, historic use doubtful	Not used	Not used
Melanesian forms	Not found	Present, distribution unknown	Not found	Found archaeologically	Not reported	Many adzes of Fijian form or manufacture
Pounders	Flat and phallic type, flaring base, type sometimes carved	Type round or carved into head, no flaring base	Type flat, or hemispherical, flaring base	Cross grip with projecting ends, flaring base	No stone pounders	No stone pounders
Pestles	Not found	Present	Common	Common	No stone pestles	No stone pestles
Carved stakes	Rare	Found on north cape, form closely similar to Marquesan one	Not used	Not found	Not used	Not used
Small figures	Fish and human, common	Human, common on North Island	Fish and human, rather rare	Fish and human, rare	Not used	Not used
Large figures	Common	Rare, limited to localities with tufa deposits	Present but rare, crudely made	Not used	Not used	Not used

7: Linton E-9 (1920-1921) 1923 OX6 Marquesas OX6
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Comparative Table Material Culture—Continued

Stone Construction

	Marquesas	New Zealand	Hawaii	Society Islands	Samoa	Tonga
Eye	Broadly oval to round, encircled by raised rim, straight or with slight upward slant	Narrow pointed oval, pronounced upward slant	Narrow pointed oval, pronounced upward slant; also straight eyes (less common)	Pointed oval encircled by raised rim; eye sometimes omitted	———	———
Brows	Exaggerated, high, arched	Exaggerated, high, arched	Exaggerated, high, arched	Exaggerated, high, arched or straight	———	———
Rough stone	Highly developed, wall terrace and platform	A few extensive structures, little or no stone construction in recent times	Highly developed, wall, terrace and platform	Well developed, wall, terrace and platform	Moderate development, wall and platforms. Large ancient structures	Moderate or none developed except, walls of enclosures
Cut stone	Highly developed, rectangular slabs set on edge to face terraces or platforms	Not used	Rare, rectangular slabs set on edge to face terraces or platforms	Highly developed, rectangular slabs set on edge to face platforms, conical forms	Paved in Fa'e only; stone posts	Highly developed, rectangular slabs set on edge to face platforms and enclosures

Mortuary Practises

	Marquesas	New Zealand	Hawaii	Society Islands	Samoa	Tonga
Mummification	Normal; evisceration by anus and rubbing with coconut oil; in dwelling or special house	Rare in historic times; evisceration by anus, rubbing with oil and smoking, special house	Not practised, temporary preservation by filling body with salt or by varnishing	Normal, evisceration thru incision and rubbing with coconut oil, in special house, anciently in dwelling	Practised by one family only, marked like Society Islands	Not practised
Earth burial	Rare, limited to priests and diamond or house; flexed position (?)	Rare, usually limited to slaves; flexed position	Lower chiefs, some priests, commoners; chiefs and priests eviscerated, commoners usually flexed	Limited to lowest class, flexed position	Normal, extended position	Normal, extended position
Body kept until disintegration	Normal	Normal	Rare; decay hastened by burial and fire	Normal	(One family only (see mummification)	Not practised
Disposal of bones	Placed in cave or sacred place; skulls of chiefs preserved	Placed in cave or hollow tree; heads of chiefs sometimes preserved	Kept in dwelling, in special house or in sacred place or placed in caves	Skulls preserved, bones buried in sacred place or put in cave	Skulls of chiefs sometimes kept	———
Vaults	Private only, form of vault unknown	Not used	Vaults in platforms, priests and lower chiefs (?)	Not used	Rare if present	Stone vaults in mounds (langi) used by all chiefs